ADAPTATION TO CLIMATE CHANGE IN THE PACIFIC ISLANDS REGION
(ACCPIR) SERVICE PACKAGE 2: DEVELOPMENT OF CLIMATE CHANGE DATABASES

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Analysis Phase and Scoping Mission
SPC-LRD and Fiji

Period: 20/09/2010 - 01/10/2010

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Introduction

Purpose of the mission:

• stocktaking exercise of all existing climate change related data and databases in the SPC-LRD, Fiji and regional stakeholders

•identify data gaps and user needs

•Preparation of inception workshop SP2

• support the scope definition of the climate change databases

Sectoral scope:

land based resources include the agriculture sector, forestry sector, land use and water catchment

Methodology:

consultations with relevant stakeholders, questionnaire and research

National stakeholders – DoE, MPI (LWRM, Land Use Planning, Economic Planning)

Regional stakeholders – SPC-LRD, SOPAC, SPREP, IUCN, USP, CSIRO, ADB

Key findings of the mission =responses of stakeholders

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- Centralised data = meta database, build on existing systems to ensure sustainability and that the data is up to date
- Existing tools and models that can be used to predict the impact on climate change on different sectors
- Lack of baseline data and obvious data gaps
- Structure of the CC database will need to take into consideration reliable sources of data, data maintenance, capacity building, budget allocations for future maintenance etc.
- Location of national climate change database.
- The IT infrastructure at the national offices is sufficient to enable electronic data sharing between the offices in different locations.
- Linkages and synergies SPREP's Climate Change portal, PCCSP and ADB/WB Hazard Mapping Project.

SPC-LRD
Existing data/database

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- Animal waste management data – biogas/methane emissions
- Pacific Islands Pest List Database, http://pld.spc.int/pld/ (PIPLD) – impact of CC on the distribution of pests.
- CePaCT Accessions Database – climate change ready collection, drought resistant varieties etc


Photo by: S. Wilson

SPC-LRD
Climate Modelling software

SimCLIM http://www.climsystems.com/simclim/ an intergrated modelling system for assessing climate change impacts and adaptation.

- can be used to assist in climate proofing in sectors: Water, Agriculture, Health, Ecosystems and issues related to the coastal zone, such as: sea-level rise and coastal erosion.

GTZ/SPC have procured licenses and carried out training in Tonga and Vanuatu.

•PacCLIM http://www.waikato.ac.nz/igci/projects/pacclim.htm and PlantGro are used for modelling purposes to assist in advising PICTs on the suitability for group crops in different areas.

•CLIMEX http://www.climex.com/

used to predict the potential distribution and relative abundance of species in relation to climate.

SPC-LRD

GIS/Remote Sensing Data

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- SPC Forest and Trees together with SOPAC are developing a database to illustrate vegetation cover of low lying islands to
- document the current stage of vegetation cover
- visualise climate change impact on indicator vegetation such as mangroves.

>>> More information in Wolf's presentation

SPC-LRD
user needs (1)

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<u>Sustainable Land use planning</u>

•Tools to advise on SLUP and land management practices to reduce vulnerability and respond to rising sea levels

Pacific-German Project “Adaptation on Climate Change in the Pacific Island Region”: Impact chains

•Improved sustainable management of land-based natural resources adapted to CC aspects

<u>Forestry</u>

•Combining climate change scenarios with vegetation mapping to assess how vegetation might change in response to climatic changes and to target vegetation assessments and areas suitable for rehabilitation including replanting forests,

•Improved monitoring of forestation and deforestation

•Advising on plant pest risks to countries as a result of climate change impacts, plant pest management, monitoring and eradication,

SPC-LRD
user needs (2)

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Agriculture

•Advising on plant genetic material with suitable climate resilient varieties.

•Advising on how CC will affect animal breeds resources and conservation, identification of locality of endemic animal breeds, natural disaster damage assessment and identification of areas prone to natural disasters.

Vulnerability Assessments

•Tools and information necessary to develop vulnerability assessments,

Coastal Management

•Improved monitoring of coastal areas through aerial mapping

SPC-LRD
Data gaps

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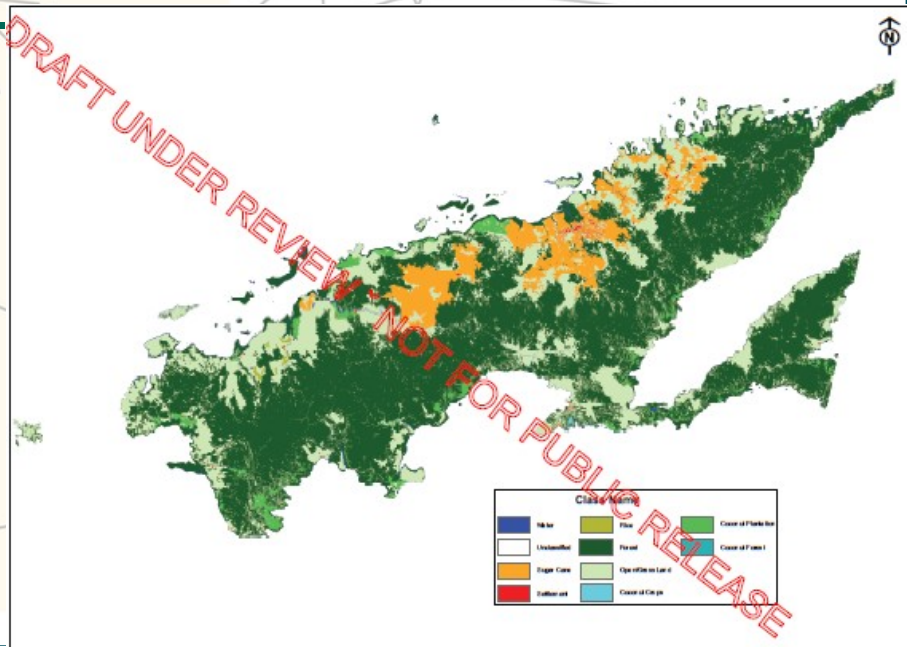
- Lack of baseline data
- Detailed topographical data
- Digitisation of PICT soil maps and demographic data, vegetation mapping for most PICTs.
- Climate change adaptation and mitigation best practice projects.



Fiji
National Data Inventory

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Agriculture

- National Agricultural Census Database which records the annual agricultural census
- AgriMarket Database which records market survey data.

(MPI - Economic Planning Division)

Land Use/ Water catchment WOLF

- Fiji's latest soil maps and digital spatial and tabular information of potential agricultural areas, available coconut cover and other land based information
- The Fiji Land Information Systems (FLIS) Unit - main spatial data sets in Fiji such as topographic data and land ownership information.
- Land Use Planning section - soils classification and GIS databases of soils and information on crop suitability.
- The National Land Trust Board (NLTB) - tabular and spatial data of leases within Fiji covering all native land.
- The Water Authority of Fiji (WAF) together with Fiji Weather Bureau and Mineral Resources Department (MRD) – hold information of flow gates and rain fall stations, current and historical records.

Fiji
National Inventory contd.

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Forestry (WOLF)

•data related to land classification sustainability, present landuse, forest cover and grassland.

(The Land and Water Resource Management (LWRM))

•The Fiji Forestry department - tabular and spatial data sets about forest cover.

•Fiji Pine Limited (FPL) – manages spatial and tabular data of most asset items for FEA.

•Fiji Hardwood Corporation - tabular and spatial data of Fiji's mahogany and other plantations.

Utility (WOLF)

•The Fiji Electricity Authority (FEA) holds spatial and tabular data of most asset items of this power utility.

•The road section of the Public Works Department hold tabular and spatial data of all public roads which is different to the road information of Lands Department.

Fiji
User Needs:

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Sustainable Land Use/Water Resource Management

•LWRM and Land Use Planning of the MPI visualises the tool used in

- identification of risk profiles for different sectors for crops,
- crop production,
- soil malnutrition,
- water solubility,
- monitoring of area/sectors,
- drainage design criteria,
- water regression in low lying areas,
- adaptation models for the Tikina (district) profiles to see existing land cover, land use planning and sustainable land management.

Fiji
Data gaps:

- Land classification from 1-8 classes, soils and climate datasets reside in Landcare.
- Present land use maps are not complete only exist district by district.
- Conversion of old maps to be digitized.

Regional level data inventory:

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SOPACs three spatial databases

-The GeoNetwork database,

-The Pacific Disaster Net.

-The third database keeps all space borne image data ordered for Pacific Island Countries maps and vectorised information Pacific Island Countries.

Vulnerability Assessment

•SOPAC's Environmental Vulnerability Index (EVI)

•EVI calculator

<u>Water Resource Management</u>

The Pacific Hydrological Cycle Observing System (HYCOS) Web Portal

The Pacific Partnership Initiative on Sustainable Water Management has an online Water Action Matrix Database

Regional level
data inventory:

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Meteorological

SPREP's Climate Change Portal

The Pacific Climate Change Science Program (PCCSP) – has a climate database management system using climate data from the 14 PICTs. Dynamic downscaling to a regional level.

Coastal management

IUCN's MESCAL - Mangroves for Fiji http://mangrovesforfiji.com/home/ who is managing a Mangrove database for Fiji. Replanting of mangroves to protect the coasts against tsunamis, hurricanes and sea level change.

Forestry

The University of the South Pacific, South Pacific Regional Herbarium database – holds accession details for all plants in the Pacific. Can be used as baseline data.

Regional level data inventory:

Agriculture

ADB/WB Hazard Mapping Project – use of remote sensing to generate map for location of cash crops, and include other classes such as forest, water, sand, settlement, others (barren land) and open/Grass land.

Adaptation

The Climate Change Adaptation Project for the Pacific (CLIMAP) – ADB project in FSM and Cook Islands. Used a risk based climate proofing approach to reduce risk to infrastructure in areas vulnerable to the sea level rise and enhanced storm frequency and severity that are expected from climate change.

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Regional level
Data gaps (WOLF):

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Data gaps identified at the GIS/RS Conference 2009:

- Up to data image data rectified with GPS control points. For low lying areas this is available for Fiji.
- Vegetation or land cover maps for most low lying islands (on the way but it will take some time to be complete. The current annual session just has endorsed the task).
- Mangrove is sensitive to salinity and sea level rise, therefore the current mangrove cover has to be documented as soon as possible.
- Maps of coastline change (in production).
- Digital terrain models at 1:10,000 scale for low lying islands.
- Rainfall data in higher temporal and spatial density.

Conclusion from the stocktaking mission

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- Climate change database can be seen as a data portal/meta database rather than a new stand alone database
- Lack of baseline data
- Issues regarding sustainability – capacity (CC, IT, funding, human resource etc)

Kids wait out tidal flooding on Funafuti Tuvalu Feb 2005. © 2005 Gary Braasch One-time print only

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The End
Thank you for your attention.